Claims

What is claimed is:

1. A method for determining a desired position of a pseudolite at a site, including the steps of:

predicting an area of coverage of the site by at least one GPS satellite;

determining a condition of reduced coverage as a function of the predicted area of coverage;

displaying the area having reduced coverage on a terrain map; and

placing a pseudolite at a location at the site to provide coverage in the area having reduced coverage.

2. A method, as set forth in claim 1, wherein predicting an area of coverage includes the step of predicting an area of coverage for a specified future period of time.

3. A method, as set forth in claim 2, wherein placing a pseudolite at a location includes the steps of:

determining a desired future period of time for having the pseudolite at the location; and

placing the pseudolite at the location during the desired future period of time.

4. A method, as set forth in claim 1, further including the step of displaying an area of coverage of the pseudolite on the terrain map.

5. A method, as set forth in claim 4, further including the step of moving the pseudolite to a new location in response to the area of coverage of the pseudolite not covering the area having reduced coverage.

6. A method, as set forth in claim 1, further including the steps of:

determining a range of levels of coverage of the at least one GPS satellite; and

displaying areas on the terrain map having at least one level of coverage in the range.

7. A method, as set forth in claim 6, further including the steps of:

determining changes in the levels of coverage of the areas as a function of a progression of time; and

displaying the changes in the levels of coverage as a function of increasing and decreasing coverage during the progression of time.

8. A method for determining a desired position of a pseudolite at a site, including the steps of:

predicting an area of coverage of the site by a plurality of GPS satellites;

determining a condition of reduced coverage as a function of the predicted area of coverage;

displaying the area having reduced coverage on a terrain map;

placing a pseudolite model on the terrain map at a desired location;

displaying an area of coverage of the pseudolite model on the terrain map; and

displaying a change in coverage of the area having reduced coverage as a function of the area of coverage of the pseudolite model.

9. A method, as set forth in claim 8, further including the steps of:

moving the pseudolite model to a second location on the terrain map;

displaying a revised area of coverage of the pseudolite model on the terrain map; and

displaying a revised change in coverage of the area having reduced coverage as a function of the revised area of coverage of the pseudolite model.

10. A method, as set forth in claim 9, further including the step of placing a pseudolite at a location at the site corresponding to a desired location of the pseudolite model.

11. A computer-based method for determining a desired position of a pseudolite at a site, including the steps of:

predicting areas of coverage of the site by a plurality of GPS satellites;

determining a condition of at least one area at the site having reduced coverage as a function of the predicted areas of coverage;

displaying the predicted areas of coverage on a terrain map, the displayed areas indicating a level of coverage;

determining an optimal location of at least one pseudolite model as a function of reduced coverage of the at least one area;

displaying the at least one pseudolite model at the optimal location on the terrain map; and

updating the terrain map display to indicate revised coverage in the areas as a function of the coverage of the GPS satellites and the at least one pseudolite model.

12. A method, as set forth in claim 11, further including the step of placing at least one pseudolite at a location at the site corresponding to a desired location of the at least one pseudolite model.

13. An apparatus for determining a desired position of a pseudolite at a site, comprising:

at least one mobile machine located at the site;

a GPS receiver located on the mobile machine for receiving signals from a plurality of GPS satellites;

a display for indicating a terrain map of the site; and

a processor for:

predicting a future area of coverage of the site by the plurality of GPS satellites;

determining a condition of predicted reduced coverage in at least one area of the site; and

providing information to the display to indicate the at least one area having reduced coverage, the area having reduced coverage being indicative of a desired position of a pseudolite at the site.

14. An apparatus, as set forth in claim 13, further including input means for inputting a desired location on the terrain map for a pseudolite model.

15. An apparatus, as set forth in claim 14, wherein the processor is further adapted to receive the desired location for the pseudolite model, provide the desired location to the display to indicate the pseudolite model at the desired location, and provide information to the display to indicate an area of coverage of the pseudolite model.

16. An apparatus, as set forth in claim 15, wherein the processor is further adapted to provide information to the display to indicate a change in coverage of the area having reduced coverage as a function of the area of coverage of the pseudolite model.

17. An apparatus, as set forth in claim 13, wherein the processor is further adapted to determine an optimal location of at least one pseudolite model as a function of the at least one area having reduced coverage, providing information to the display to indicate the at least one pseudolite model at the optimal location, and provide information to the display to update the terrain map to indicate revised coverage in the at least one area as a function of the coverage of the plurality of GPS satellites and the at least one pseudolite model.

18. An apparatus for determining a desired position of a pseudolite at a site, comprising:

a remote site;

a display located at the remote for indicating a terrain map of the site;

a processor located at the remote site for:

predicting a future area of coverage of the site by the plurality of GPS satellites;

determining a condition of predicted reduced coverage in at least one area of the site; and

providing information to the display to indicate the at least one area having reduced coverage, the area having reduced coverage being indicative of a desired position of a pseudolite at the site; and

means for delivering the provided information from the remote site to the site.

19. An apparatus, as set forth in claim 18, further including input means at the remote site for inputting a desired location on the terrain map for a pseudolite model.

20. An apparatus, as set forth in claim 19, wherein the processor is further adapted to receive the desired location for the pseudolite model, provide the desired location to the display to indicate the pseudolite model at the desired location, and provide information to the display to indicate an area of coverage of the pseudolite model.

21. An apparatus, as set forth in claim 20, wherein the processor is further adapted to provide information to the display to indicate a change in coverage of the area having reduced coverage as a function of the area of coverage of the pseudolite model.

22. An apparatus, as set forth in claim 18, wherein the processor is further adapted to determine an optimal location of at least one pseudolite model as a function of the at least one area having reduced coverage,

providing information to the display to indicate the at least one pseudolite model at the optimal location, and provide information to the display to update the terrain map to indicate revised coverage in the at least one area as a function of the coverage of the plurality of GPS satellites and the at least one pseudolite model.